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EXAMINER

SHANG, ANNAN Q

ART UNIT

PAPER NUMBER

2614

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/640,480

Applicant(s)

SANDBERG ET AL.

Examiner

Annan Q Shang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-18, are rejected under 35 U.S.C. 102(b) as being anticipated by **Liu et al (6,618,387)**.

As to claim 1, note **Liu et al** reference figures 1 and 2, disclose a typical cable network, with cable modems 30 and Cable Modem Termination System (CMTS) 20 or Head end, that supports transmission of data and further disclose in figures 3 and 5, a system and method for integrating a cable modem with a host customer premises equipment, such as a computer or set top box comprising the following:

the claimed "receiving information which may include cable modem data and cable modem commands..." is met by Cable Modem (CM) 30 (figs. 3, 5, col. 7, lines 21-33, lines 48-52), note that Host Computer System (HCS) 210 or Host 85 includes Cable Modem (CM) 30, which is integrated in HCS 210 or Host 85, and CM 30 receives cable modem data and cable modem commands (fig. 4, col. 8, lines 14-23) from Cable Modem Termination System (CMTS) 20 via cable network 130; note further that the incoming data received by HCS 210, is either consumed by HCS 210 itself or passed to one or more items of Customer Premises Equipment (CPE) 230 (col. 7, lines 48-55), which meets the claimed "transferring at least a portion of the information to the host

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computer” note further that Host 85 or HCS 210 from the point of view of CM is a CPE (col. 9, lines 7-8);

the claimed “performing functions corresponding to any transferred cable modem commands on the host...” is met by Hardware Abstraction Layer (HAL) 60 of CM Driver (CMD) 80 (col. 8, lines 43-67), note that HAL 60 is part of CMD 80 and establishes a connection “performing functions” between Media Access Controller (MAC) layer 50 and Physical Layer (P-Lay) 70 to permit “first result” any host to operate with any CM so long as the CM and associated software are compatible with HAL 60, where HAL 60 presents a defined interface to P-lay 70 which also processes the data received over the cable network such that it is compatible with HAL 60 (col. 8, lines 62-67 and col. 10, lines 53-65), which meets the claimed “translating the first result into hardware specific functions,” note further that the “first result” is permitting any host to operate with any CM and the claimed “executing the hardware specific function” is also met by HAL 60 (col. 9, lines 13-23), note further that the P-Lay 70 is primarily the hardware associated with a CM;

the claimed “processing any transferred cable modem data on the host computer into second results” is met by HAL 60 (col. 8, lines 43-67 and col. 9, lines 5-23), note that HAL 60 further separates P-lay 70 from MAC layer 50 a software layer or protocol layer, (col. 8, lines 31-42 and lines 57-59), note that HAL 60 functions to transfer data from MAC layer 50 to the P-Lay 70 (col. 8, lines 62-67 and col. 10, lines 53-65), processing any transferred CM data on Host 85, and processing the data packets such that the data packets are compatible with HAL 60 (col. 9, lines 13-23), note that the

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claimed "second result" is achieved in software by HAL 60 communicating with MAC Layer 50, and this is translated into data packets compatible "hardware specific data formats" with HAL 60, which transfers the hardware specific data (col. 9, lines 16-35), note that HAL 60 handles packet information retrieval from the CM 30, MAC management messages, initializing, controlling CM 30, executing hardware related function of CMD 80 and further facilitates the interoperability of CMs with host by providing a standard interface.

As to claim 2, the claimed "cable modem abstraction layer..." is met by HAL 60 (figs. 5, 6, col. 8, lines 49-55, col. 9, lines 1-23 and col. 10, lines 20-26), note that HAL 60 is an abstraction layer that interfaces with CM 30 and Host or CPE.

As to claim 3, Liu further discloses where HAL 60 performs the translation (col. 8, line 51-col. 9, line 25).

As to claim 4, Liu further discloses where HAL 60 is a DOCSIS abstraction layer (col. 9, lines 37-56 and col. 10, lines 26-37).

As to claim 5, the claimed "firmware emulator..." is met by CMD 80 (col. 8, line 51-col. 9, line 23 and col. 10, lines 53-65), note that CMD 80 which includes HAL 60 is a firmware emulator that performs functions on CM, such as, routing MAC management messages, controlling DOCSIS state machines, managing execution of tasks, etc.

As to claim 6, Liu further discloses where modem functions performed by HAL 60 on Host 210 or 85 is hardware independent (col. 8, line 57-col. 9, line 23).

As to claim 7, note **Liu et al** reference figures 1 and 2, disclose a typical cable network, with cable modems (CM) 30 and Cable Modem Termination System (CMTS)

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20 or Head end, that supports transmission of data and further disclose in figures 3 and 5, a modem function processor comprising the following: the claimed “an abstraction layer which translates modem functions to hardware-specific functions” is met by Hardware Abstraction Layer (HAL) 60 of CM Driver (CMD) 80 (col. 8, lines 43-67), note that HAL 60 is part of CMD 80 and hardware abstraction layer and establishes a connection between Media Access Controller (MAC) layer 50 and Physical Layer (P-Lay) 70 by translating modem functions to and from hardware-specific functions, that permits any host and any CM to have a uniformity and communicate with each other (figs. 3, 5 and col. 8, lines 51-col. 9, lines 26); and the claimed “a firmware emulator which performs hardware independent functions” is met by CMD 80 (col. 8, line 51-col. 9, line 23 and col. 10, lines 53-65), note that CMD 80 which includes HAL 60 is a firmware emulator that performs functions on CM, such as, routing MAC management messages, controlling DOCSIS state machines, managing execution of tasks, etc.

As to claim 8, Liu further discloses where HAL 60 sends or receives modem commands and data to or from CM 30 (col. 8, lines 51-57, col. 9, lines 13-36 and col. 10, lines 53-65).

Claim 9 is met as previously discussed with respect to claim 4.

As to claims 10 and 11, the claimed “firmware emulator...” is met by CMD 80 (col. 9, lines 5-12) note that CMD 80 is a firmware emulator, includes HAL 60 which receives modem commands and data from CMTS 20 via Cable Network 130 and CM 30 and distributes the modem commands and data among Media Access Controller (MAC) layer 50, MAC 52, CM IP 40 BPI 54, VB 90, Physical Layer (P-Lay) 70, etc., (figs. 4, 5,

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col. 9, lines 5-12 and lines 37-58) "state machine functions" where the various function machines performs CM functions to enable any host and any CM to communicate with each other.

As to claims 12 and 13, Liu further discloses HAL 60, (col. 8, lines 51-67) an interface to CM 30, and includes MAC 50, P-Lay 70, etc., "intermediate software driver interface layers."

As to claim 14, Liu further discloses where HAL 60 is a direct interface col. 8, lines 51-67).

As to claim 15, note **Liu et al** reference figures 1 and 2, disclose a typical cable network, with cable modems (CM) 30 and Cable Modem Termination System (CMTS) 20 or Head end, that supports transmission of data and further disclose in figures 3 and 5, method of performing modem functions comprising the following: the claimed "receiving the modem commands and/or data" is met by CM Driver (CMD) 80 (col. 8, line 51-col. 9, line 23 and col. 10, lines 53-65), note that CMD 80 includes HAL 60 which receives modem commands and data from CMTS 20 via Cable Network 130 and CM 30 and distributes the modem commands and data among Media Access Controller (MAC) layer 50, MAC 52, CM IP 40 BPI 54, VB 90, Physical Layer (P-Lay) 70, etc., (figs. 4, 5, col. 9, lines 5-12 and lines 37-58) "state machine functions" and processes the various machine functions on Host 210 or Host 85 by sharing memory, CPU and system resources of the Host.

As to claim 16, Liu further discloses where HAL 60 "abstraction layer" converts between hardware specific functions and hardware independent functions (col. 8, lines

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51-67 and col. 9, lines 13-23), note that HAL 60 retrieves data packets from CM 30 process the data packets and present to MAC 50 layer, the protocol layer that handles hardware specific functions and further processes P-Lay 70, the hardware functions.

As to claim 17, Liu further discloses where the modem functions, are CM functions that complies with DOCSIS (col. 9, lines 37-56 and col. 10, lines 20-52).

As to claim 18, Liu further discloses where the processing uses resources of Host 210 or 85 (col. 9, lines 5-12).

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Liu et al (6,618,386) disclose hosting a cable modem in a computer using a virtual bridge.

Shen et al (6,401,059) disclose method and system for using a personal digital assistant as a remote control.

O'Sullivan (5,640,444) disclose methods and apparatus for controlling data transmission using radio devices.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Annan Q Shang** whose telephone number is **703-305-2156**. The examiner can normally be reached on **700am-500pm**.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **John W Miller** can be reached on **703-305-4795**. The fax phone number for the organization where this application or proceeding is assigned is **703-872-9306**.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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